



**United Nations  
Environment  
Programme**

Distr.  
LIMITED

UNEP/OzL.Pro/ExCom/39/29  
6 March 2003

ORIGINAL: ENGLISH



EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Thirty-ninth Meeting  
Montreal, 2-4 April 2003

**PROJECT PROPOSALS: BOSNIA AND HERZEGOVINA**

This document consists of a Note from the Secretariat and comments and recommendations on the two projects listed below:

Foam

- Project to phase out CFC-11 by conversion to n-pentane in the manufacture of rigid foam projects for insulating purposes at Stirokart Co. UNIDO

Refrigeration

- Umbrella project, Replacement of CFC-12 with HFC-134a, CFC-11 with HCFC-141b, and TCA with non-cleaning process in the manufacture of commercial refrigeration equipment, panels, and heat exchangers at Three Enterprises in Bosnia and Herzegovina. UNIDO

## NOTE FROM THE SECRETARIAT

1. UNIDO is submitting two projects in support of the Action Plan for Bosnia and Herzegovina for consideration by the Executive Committee at its 39<sup>th</sup> Meeting. The latest CFC consumption data reported by Bosnia and Herzegovina under Article 7 is 199.7 ODP tonnes in 2001, while its baseline (average 1995-1997) consumption is 24.2 ODP tonnes. Therefore, Bosnia and Herzegovina is in non-compliance with the 1999 freeze in consumption of Annex A Group I substances.

2. At their 14<sup>th</sup> Meeting, the Parties to the Montreal Protocol (Decision XIV/21) decided inter alia that:

- "Bosnia and Herzegovina submit to the Implementation Committee a plan of action with time-specific benchmarks to ensure a prompt return to compliance. Bosnia and Herzegovina may wish to consider including in this plan of action the establishment of import quotas to freeze imports at baseline levels and support the phase-out schedule, a ban on imports of ODS equipment, and policy and regulatory instruments that will ensure progress in achieving the phase-out;"
- "Bosnia and Herzegovina should continue to receive international assistance to enable it to meet these commitments in accordance with item A of the indicative list of measures that might be taken by a Meeting of the Parties in respect of non-compliance. However, through this decision, the Parties caution Bosnia and Herzegovina, in accordance with item B of the indicative list of measures, that in the event that it fails to return to compliance in a timely manner, the Parties shall consider measures, consistent with item C of the indicative list of measures."

3. On 28 February 2003, the Government of Bosnia and Herzegovina in a letter to the Executive Secretary of the Ozone Secretariat which was copied to the Chief Officer of the Fund Secretariat, described measures it was adopting in response to Decision XIV/21, specifically to come into compliance in the shortest possible time. In addition to legislative and regulatory measures, the government's plan foreshadows reduction of about 70% of its current consumption through investment projects in the foam and refrigeration sectors. According to the Action Plan, Bosnia and Herzegovina would not be able to be in compliance with either the freeze or the 50% reduction in CFC consumption by 2005 but, it might be in compliance with the 85% reduction in the year 2007 and achieve complete phase-out by 2009.

4. The Action Plan from the Government of Bosnia and Herzegovina is attached to this document.

5. Bosnia and Herzegovina selected Option 2 for determining its starting point for CFC consumption. Based on this option, Bosnia and Herzegovina's remaining CFC consumption eligible for funding is 108.6 ODP tonnes, using its 2000 consumption figure of 176.0 ODP tonnes.

6. It is to be noted that Bosnia and Herzegovina stated in its action plan that its 2002 CFC consumption was 237.0 ODP tonnes. Therefore, 61.0 ODP tonnes of this 2002 consumption will be ineligible for funding.

7. The two projects submitted by UNIDO for consideration at the 39<sup>th</sup> Meeting are being submitted in support of the Government's action plan. The Secretariat and UNIDO discussed the two projects against the background of the urgent need of the Government of Bosnia and Herzegovina to comply with the aforementioned decision of the Parties and the resultant need to expedite project implementation in Bosnia and Herzegovina.

8. Consequently, UNIDO agreed as a matter of priority to work with the Government of Bosnia and Herzegovina to expedite the implementation of the projects. Hence the duration of each of the two projects was reduced from 30 to 15 months. The Secretariat and UNIDO have agreed on all related technical issues and costs of the projects as described in the project evaluation sheets that follow.

9. The two investment projects are submitted for individual consideration on account of the status of Bosnia and Herzegovina as a Party in non-compliance with the CFC freeze measures. The Executive Committee may wish to consider the projects against the background of this Note from the Secretariat and the letter of the Government of Bosnia and Herzegovina to the Ozone Secretariat.

**PROJECT EVALUATION SHEET  
BOSNIA AND HERZEGOVINA**

SECTOR:           Foam                                   ODS use in sector (2002):           54.00 ODP tonnes  
                  Refrigeration                               ODS use in sector (2002):           183.00 ODP tonnes

Sub-sector cost-effectiveness thresholds:   Rigid foam                               US \$7.83/kg  
  Commercial refrigeration           US \$15.21/kg  
  TCA Solvent                             US \$38.5/kg

- (a) Project to phase out CFC-11 by conversion to n-pentane in the manufacture of rigid foam projects for insulating purposes at Stirokart Co.  
(b) Umbrella project, Replacement of CFC-12 with HFC-134a, CFC-11 with HCFC-141b, and TCA with non-cleaning process in the manufacture of commercial refrigeration equipment, panels, and heat exchangers at Three Enterprises in Bosnia and Herzegovina

Project Data	Rigid Foam	Commercial Refrigeration
	Stirokart	Three Enterprises
Enterprise consumption (ODP tonnes)	33.00	14.57
Project impact (ODP tonnes)	33.00	13.68
Project duration (months)	15	15
Initial amount requested (US \$)	364,650	175,283
Final project cost (US \$):		
Incremental capital cost (a)	371,800	146,400
Contingency cost (b)	37,180	11,000
Incremental operating cost (c)	-4,022	17,883
Total project cost (a+b+c)	404,958	175,283
Local ownership (%)	100	100
Export component (%)	0	0
<b>Amount requested (US \$)</b>	364,650	175,283
Cost effectiveness (US \$/kg.)	11.05*	12.82*
Counterpart funding confirmed?	Yes	
National coordinating agency	Ministry of Foreign Trade and Economic Relation	
Implementing agency	UNIDO	
<b>Secretariat's Recommendations</b>		
Amount recommended (US \$)		
Project impact (ODP tonnes)		
Cost effectiveness (US \$/kg)		
Implementing agency support cost (US \$)		
Total cost to Multilateral Fund (US \$)		

\* Bosnia and Herzegovina is a low-volume consuming country and is not subject to cost-effectiveness threshold.

## PROJECT DESCRIPTION

### Sector background

#### **CFC (Annex A Group I) Consumption and Phase-out Profile**

- |   |                   |
|---|-------------------|
| - <b>According to Decision 35/57 Bosnia and Herzegovina has selected Option 2 as starting point consumption amounting to:</b>     | 176.00 ODP tonnes |
| - Remaining consumption of CFCs eligible for funding as at 39 <sup>th</sup> Meeting (per Decision 35/57, proviso B)*              | 108.60 ODP tonnes |
| - Impact of ALL CFC projects submitted for funding at the 39 <sup>th</sup> Meeting  | 46.05 ODP tonnes  |
| - Maximum remaining consumption of CFCs eligible for funding following approval of projects submitted to 39 <sup>th</sup> Meeting | 62.55 ODP tonnes  |

#### **Foam Sector Profile**

- |  |                  |
|--|------------------|
| - Consumption of CFCs in the foam sector in 2002**   | 54.00 ODP tonnes |
| - Amount of CFCs to be phased out in on-going foam projects  | 21.00 ODP tonnes |
| - Impact of foam projects submitted for funding at the 39 <sup>th</sup> Meeting on remaining CFC consumption | 33.00 ODP tonnes |

#### **Refrigeration Sector Profile**

- |   |                   |
|---|-------------------|
| - Consumption of CFCs in the refrigeration sector in 2002**   | 183.00 ODP tonnes |
| - Amount of CFCs to be phased out in on-going refrigeration projects  | 47.50 ODP tonnes  |
| - Impact of refrigeration projects submitted for funding at the 39 <sup>th</sup> Meeting on remaining CFC consumption | 14.57 ODP tonnes  |

\* Three projects to phase out 67.4 ODP tonnes were approved for Bosnia and Herzegovina at the 35<sup>th</sup> Meeting, resulting in a remaining consumption of 108.6 ODP tonnes.

\*\* Based on data provided to the Fund Secretariat on 3 March 2003 by the Government of Bosnia and Herzegovina.

### **Rigid polyurethane foam**

#### **Stirokart Company**

10. Stirokart Co. produces rigid PU foam panel boards and blocks for insulation purposes and decorative beams used in civil construction. It consumed 33 ODP tonnes of CFC-11 in 2001 which will be phased out by conversion to n-pentane blown technology. The company operates two 30 l/min and 60 l/min low pressure foaming machines installed in 1987. The incremental capital cost of conversion which includes the cost of one high pressure dispenser with two mixing heads for use with n-pentane, pentane storage and delivery facilities, premixing station,

modification of presses, ventilation, gas sensors and other fire protection facilities, is calculated to be US \$408,980 including 10% contingency. Incremental operating savings of US \$4,022 will be realized resulting in a total project cost of US \$404,958. A grant amount of US \$364,650 is requested.

## **Refrigeration**

### Three Enterprises

11. There are three remaining medium-sized and eight small-sized companies manufacturing domestic and commercial refrigeration equipment with a total remaining consumption of about 128 ODP tonnes. UNIDO is submitting this umbrella project for the conversion of 3 enterprises manufacturing commercial refrigeration equipment to the 39<sup>th</sup> Meeting of the Executive Committee to phase out 14.57 ODP tonnes.

12. The three enterprises (Soko Paneli, Soko IPV and Kuca Leda) consumed 12.5 ODP tonnes of CFC-11, 1.44 ODP tonnes of CFC-12 and 0.63 ODP tonnes of TCA in 2001 in manufacturing different commercial refrigeration equipment (polyurethane panels, display cabinets, heat exchangers, cold storage chambers and transport refrigerators. Soko Paneli uses a high-pressure foaming machine. Low pressure foaming machines are used at Soko IPV and Kuca Leda. Soko IPV uses 6.28 ODP tonnes of TCA in their metal work process. The enterprises carry out refrigerant related operations using vacuum pumps, charging machines and leak detectors in the baseline.

13. The total phase out of 14.57 ODP tonnes of CFC-11, CFC-12 and TCA will be achieved by converting CFC-11 based technology to HCFC-141b as the foam blowing agent, CFC-12 to HFC-134a as the refrigerant and TCA to a non-cleaning process. Under the current project, the existing foaming machines will be retrofit for use with the new technology. All the enterprises will require replacement or retrofit of industrial or portable charging units, retrofit of vacuum pumps and leak detectors suitable for HFC-134a duty. Other costs include re-design of main models, testing, trials and training. Incremental costs are requested by the enterprises reflecting higher cost of chemicals and components.

### Justification for the use of HCFC-141b

14. Justification for the use of HCFC-141b is provided in the project document. UNIDO indicated that the choice of HCFC-141b as interim technology was made by the enterprises following a discussion with them on available alternatives and relevant decisions of the Executive Committee regarding the use of HCFC-141b as interim substitute foam blowing agent.

15. In accordance with relevant decisions of the Executive Committee on the use of HCFCs, a letter of transmittal from the Government of Bosnia and Herzegovina endorsing the use of HCFC-141b by the companies has been submitted and is attached.

## SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

### COMMENTS

16. As indicated in the Note from the Secretariat, following discussion of the projects between the Secretariat and UNIDO, UNIDO agreed to reduce the project duration of each project from 30 to 15 months. All technical issues as well as the costs of the projects have been discussed and agreed.

17. The following grant amounts were agreed:

	US \$	Cost-effectiveness*
Rigid foam: Stirokart	364,650	11.05
Commercial Refrigeration: Three Enterprises	175,283	12.82 (overall)**

\* Bosnia and Herzegovina is a low-volume-consuming country (LVC), hence the projects are not subject to cost-effectiveness threshold.

\*\* The cost-effectiveness of the component activities in the refrigeration project were as follows: insulation panels: US \$7.83/kg, commercial refrigeration manufacturing: US \$15.21/kg and application of TCA: US \$38.5/kg.

### RECOMMENDATIONS

18. Both projects are submitted for individual consideration on account of issues raised in the Note from the Secretariat.

19. Should the Committee decide to approve the projects, it may wish to request UNIDO and the Government of Bosnia and Herzegovina to make every effort to expedite implementation of the projects and ensure that they are completed not later than 15 months from the date of their approval in order to assist the Government of Bosnia and Herzegovina to expedite its compliance with the CFC reduction measures under the Montreal Protocol.





National ODS Phase-out Plan (NPP) of Bosnia and Herzegovina

**SUMMARY BREAKDOWN OF ODS CONSUMPTION IN BiH (tonnes / annum)  
(Annexes A, Group I of the Montreal Protocol)**

	ODS ⇒	CFC-11				CFC-12				Total CFCs			
SECTOR	COMPANY NAME/ PERIOD ⇒ / ODS – Consumer / ↓	95-97	2000	2001	2002	95-97	2000	2001	2002	95-97	2000	2001	2002
FOAM	INGA, Gradiška		21.0	9.0	21.0						21.0	9.0	21.0
	POLIHEM, Tuzla		10.0	22.0	Nil						10.0	22.0	Nil
	STIROKART, Srbac		21.0	33.0	33.0						21.0	33.0	33.0
	<b>Sub-total: FOAM</b>		<b>52.0</b>	<b>64.0</b>	<b>54.0</b>						<b>52.0</b>	<b>64.0</b>	<b>54.0</b>
REFRIGERATION	* BIRA, Bihać		25.4	28.1	28.1		4.5	5.3	5.3		28.9	33.4	33.4
	* SOKO, Mostar		16.4	18.9	18.9		2.5	2.3	2.3		18.9	18.9	18.9
	* KUĆA LEDA, Mostar		0.1	3.1	3.1		0.2	1.6	1.6		0.3	4.7	4.7
	* IPV, Čitluk		0.2	0.8	0.8		0.1	0.2	0.2		0.3	1.0	1.0
	GRIZELJ, Sarajevo				Nil		0.1	0.2	Nil		0.1	0.2	Nil
	* SOKO-PANELI, Ljubinje		7.5	8.6	8.6		0.5	0.6	0.6		8.0	9.2	9.2
	Other (8) Producers of Commercial Refrigeration Equipment		5.0	5.0	22.3		1.0	1.0	6.2		6.0	6.0	28.5
	Services Refrigeration Equipment						60.0	60.0	85.0		60.0	60.0	85.0
<b>Sub-total: REFRIGERATION</b>		<b>22.3</b>	<b>54.6</b>	<b>64.5</b>	<b>81.8</b>	<b>1.9</b>	<b>68.9</b>	<b>71.2</b>	<b>101.2</b>	<b>1.5</b>	<b>1.9</b>		
<b>TOTAL</b>		<b>22.3</b>	<b>106.6</b>	<b>128.5</b>	<b>135.8</b>	<b>1.9</b>	<b>68.9</b>	<b>71.2</b>	<b>101.2</b>	<b>24.2</b>	<b>176.5</b>	<b>199.7</b>	<b>237.0</b>

NOTE: \* Co Frozen ODS Consumption data for consumers whose projects were approved or up to approval (submitted to the MP ExCom consideration)

## Bosnia and Herzegovina

### Country strategy to return to compliance according to the Decision XIV/21 of the Fourteen Meeting of the Parties.

Actual situation and necessary actions to be undertaken for the reduction and phase-out of the Annex A, Group I substances:

Year	95 - 97	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Consumption	24.16			176	200	237	230	161.4	113.5	45	5	0	0	
<b>MP targets</b>			<b>24.16</b>						<b>12.08</b>		<b>3.6</b>			<b>0</b>

#### Plan of actions : *(An Outline from the NPP Action Plan of Bosnia and Herzegovina)*

2003 Institutional strengthening measures imposed to prevent the growth:

- (i) Drafting, adoption and establishment of the Country Legislation (Framework State Law on Environment Protection,
- (ii) Adoption, and implementation of ODS phas-out regulations at state level (Monitoring-Licensing and Quota System for ODS import and consumption control; Information System for ODS consumption
- (iii) reduction (**7 tonnes**) of CFC consumption due to slow down of foam industrial production

2004 \* Investment project for Soko Co. accomplished (21,2 tonnes CFCs reduction)

\* Investment project for Inga Co. accomplished (21 tonnes CFCs reduction)

\* Investment project for Bira Co. accomplished (33,4 tonnes reduction)      **(Sub-total reduction 75,6 tonnes)**

2005 \* Investment project for Stirokart Co. accomplished (33 tonnes reduction)

\* Investment project (Umbrella-1) for Soko-Paneli, Kuca Leda and IPV accomplished 14,9 tonnes      **(Sub-total reduction 47,9tonnes )**

2006 \* Investment project (Umbrella-2) for companies (small and midium size commercial refrigeration equipment producers: Slatkom Co, Ordagic Co, Sofrel Co Elit Debejki Co, Santa Co, Interfrigo Co, SP Mont Co and EKO-Elektrofrigo Co) acomplished (28,5 tonnes CFCs reduction)

\* CFC-12 Phase-out Reduction in Refrigeration Service Sector by 30 tonnes)      **(Sub-total reduction 58,5 tonnes )**

2007 \* Import quotas established to freeze imports at baseline levels and to support the phase out schedule

\* RMP component in the National Phase out Programme implemented **(40 tonnes reduction)**

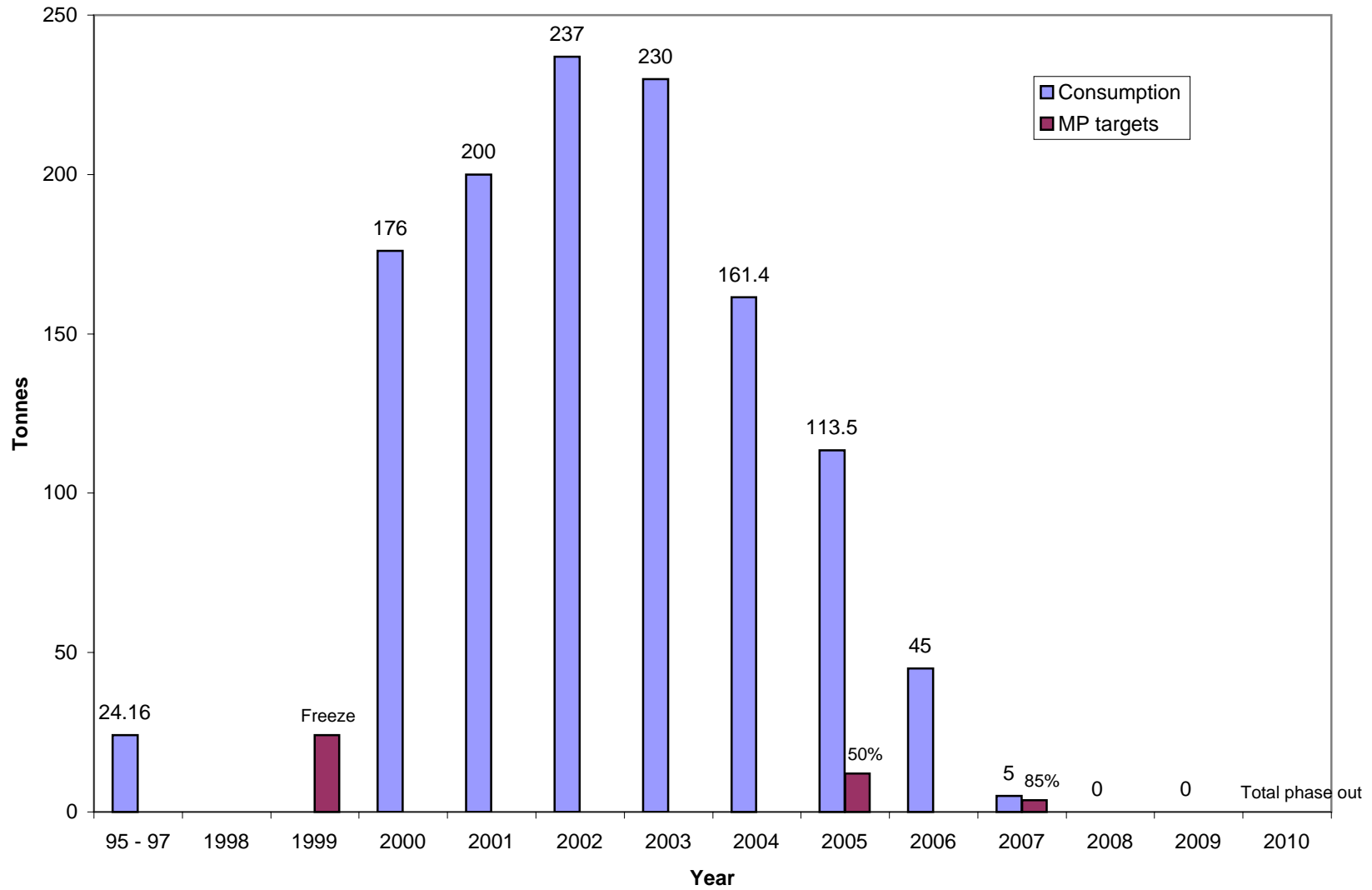
2008 \* Non-investment activities targeting direct **reduction of 5 tonnes** .

2009 \* Entire legislation of the country is in compliance with the standards of EU. Ban on imports of ODS equipment in function.

\*Awareness promotion and enforcement of existing legislation in function

\* National Phase out Programme implemented **and CFCs phased out)**

### ODS consumption in Bosnia and Herzegovina





**BOSNIA AND HERZEGOVINA**  
**Council of Ministers**  
**Ministry of Foreign Trade and Economic Relations**  
**National Ozone Unit**

**GOVERNMENT NOTE OF TRANSMITTAL OF INVESTMENT PROJECTS TO THE  
EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL**

**PROJECT(S) OF THE GOVERNMENT OF BOSNIA & HERZEGOVINA**

The Government (Council of Ministers) of Bosnia & Herzegovina, requests the United Nations Industrial Development Organization to submit the project listed in Table 1 below/attached Table 1 to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol for consideration at its 39th. Meeting.

**Section I: ODS Consumption Data**

1. The ODS consumption figures of the projects have been validated by the National Ozone Unit (NOU).
2. The consumption data have been retained in the records of the NOU for reference and/or future verification.
3. The Government has been advised by the NOU that the agreement to the project indicates a commitment to ensure that the validated phase-out figures were realized and yielded a sustained reduction from the 2001 consumption of 121.2 ODP tonnes for the refrigeration sector.

**Table 1: Projects Submitted to the 39th. Meeting of the Executive Committee**

Project Title/Sector	Type of ODS	Consumption (ODP Tonnes), (Year)	Amount to be Phased Out (ODP Tonnes), (Year)	Implementing Agency
Umbrella refrigeration project: Replacement of refrigerant CFC-12 with HFC 134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of commercial refrigeration equipment and panels at three enterprises in Bosnia and Herzegovina	CFC-11	12.46	-	UNIDO
	CFC-12	2.44	-	
	R-502	0.50	-	
<b>Total</b>		<b>15.40</b>		

*Projects of the Government of Bosnia and Herzegovina*

*Date: 4 March 2003*

*Ab*

**Section II: Other Relevant Actions Arising from Decision 33/2**

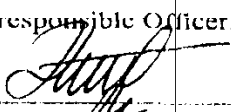
4. It is understood that, in accordance with the relevant guidelines, the funding received for a project would be partly or fully returned to the Multilateral Fund in cases where technology was changed during implementation of the project without informing the Fund Secretariat and without approval by the Executive Committee;
5. The National Ozone Unit undertakes to monitor closely, in cooperation with customs authorities and the environmental protection authorities, the importation and use of CFCs and to combine this monitoring with occasional unscheduled visits to importers and recipient manufacturing companies to check invoices and storage areas for unauthorized use of CFCs.
6. The National Ozone Unit will cooperate with the relevant implementing agencies to conduct safety inspections where applicable and keep reports on incidences of fires resulting from conversion projects.

**Section III: Projects Requiring the Use of HCFCs for Conversion**

7. In line with Decision 27/13 of the Executive Committee and in recognition of Article 2F of the Montreal Protocol, the Government
  - (a) has reviewed the specific situations involved with the project SOKO-IPV, KUCLA LEDA and SOKO-PANELI as well as its HCFC commitments under Article 2F; and
  - (b) has nonetheless determined that, at the present time, the projects needed to use HCFCs for an interim period with the understanding that no funding would be available for the future conversion from HCFCs for the companies involved.

Name and signature of responsible Officer:

Mr. Ibro Cengić

Designation: *Operational Focal Point for Ozone  
and NOU Manager*

Date: 4 March 2003

Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina

Telephone: +387 33 206 141

Fax: +387 33 206 141

e-mail: [vetcon@bih.net.ba](mailto:vetcon@bih.net.ba)*Projects of the Government of Bosnia and Herzegovina*

Date: 4 March 2003